

Applicant : Shuichi Kikuchi et al.
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137276M/SW

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A semiconductor device comprising:

a gate electrode formed on a first conductive type semiconductor substrate through a gate oxide film;

a first low concentration drain region of a second conductive type provided at adjacent to one end of said gate electrode;

a second low concentration drain region of the second conductive type, provided in said first low concentration drain region, said second low concentration drain region being disposed close to an outer boundary of said first low concentration drain region and being higher in impurity concentration than at least an impurity concentration of the first low concentration drain region, wherein at least part of said second low concentration drain region is extended to an area under said gate electrode;

a high concentration source region of the second conductive type provided at adjacent to another end of said gate electrode, wherein the high concentration source region is in direct contact with the substrate; and

a high concentration drain region of the second conductive type formed in said second low concentration drain region, said high concentration drain region being spaced away a predetermined distance from said gate electrode and being higher in impurity concentration than the second low concentration drain region.

2. (Previously Presented) A semiconductor device according to Claim 1, wherein said first low concentration drain region and said second low concentration drain region are formed

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by utilizing two kinds of second conductive type impurities, and the two kinds of said second type conductive impurities have different diffusion coefficients.

3. (Previously Presented) A semiconductor device according to Claim 1, wherein said first low concentration drain region and said second low concentration drain region are formed by using phosphorus ions and arsenic ions, respectively.

Claims 4-7 (Canceled)

8. (Previously presented) A semiconductor device according to Claim 1, wherein relatively, the first and second low concentration drain regions have low impurity concentrations and the high concentration drain region has a high impurity concentration.

9. (Currently Amended) A semiconductor device comprising:

a semiconductor substrate;

an gate oxide film provided on the semiconductor substrate;

a gate electrode disposed on the gate oxide film;

a first drain region provided at adjacent to one end of said gate electrode in the semiconductor substrate;

a second drain region provided in said first drain region, an outer boundary of said second drain region being disposed close to an outer boundary of said first drain region, wherein at least part of said second drain region is extended to an area under said gate electrode;

a third drain region provided in said second drain region, said third drain region being spaced away a predetermined distance from said gate electrode and being spaced apart from the outer boundary of the second drain region; and

a source region of the second conductive type provided at adjacent to another end of said gate electrode, wherein region of the second conductive type is in direct contact with the substrate,

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wherein the first, second, and third drain regions all having different impurity concentrations.

10. (Previously presented) A semiconductor device according to Claim 9, wherein the second drain region has a higher impurity concentration than the first drain region, and the third drain region has a higher impurity concentration than the second drain region.

11. (Previously presented) A semiconductor device according to Claim 9, wherein the first, second, and third drain regions and the source region are of a second conductivity type and the semiconductor substrate is of a first conductivity type.

12. (Previously presented) A semiconductor device according to Claim 9, wherein said first drain region and said second drain region are formed by utilizing two kinds of second conductive type impurities, and the two kinds of said second type conductive impurities have different diffusion coefficients.

13. (Previously presented) A semiconductor device according to Claim 9, wherein said first drain region and said second drain region are formed by using phosphorus ions and arsenic ions, respectively.

14. (Previously presented) A semiconductor device according to Claim 9, wherein the first, second and third drain regions form a triple well structure in the semiconductor substrate such that the third drain region is the innermost well, the second drain region is the middle well surrounding the third drain region, and the first drain region is the outermost well surrounding the second drain region.